



## SEQUENCE LISTING

<110> Segre, Gino V.  
Kronenberg, Henry M.  
Abou-Samra, Abdul-Badi  
Juppner, Harald  
Potts, Jr., John T.  
Schipani, Ernestina

<120> PARATHYROID HORMONE RECEPTOR AND DNA ENCODING SAME

<130> 00786/071005

<140> US 09/199,874

<141> 1998-11-24

<150> US 08/471,494

<151> 1995-06-06

<160> 21

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1862

<212> DNA

<213> Didelphoidea

<220>

<221> CDS

<222> (98)...(1642)

<400> 1

tgggcacagc caccctgttg gtagtccagg ggccagccca ctgagctggc atatcagctg	60
gtggccccgt tggactcggc cctaggggaac ggcgggcg atg gga gcg ccc cgg atc	115
Met Gly Ala Pro Arg Ile	
1 5	

tcg cac agc ctt gcc ttg ctc ctc tgc tgc tcc gtg ctc agc tcc gtc	163
Ser His Ser Leu Ala Leu Leu Leu Cys Cys Ser Val Leu Ser Ser Val	
10 15 20	

tac gca ctg gtg gat gcc gat gat gtc ata acg aag gag gag cag atc	211
Tyr Ala Leu Val Asp Ala Asp Asp Val Ile Thr Lys Glu Glu Gln Ile	
25 30 35	

att ctt ctg cgc aat gcc cag gcc cag tgt gag cag cgc ctg aaa gag	259
Ile Leu Leu Arg Asn Ala Gln Ala Gln Cys Glu Gln Arg Leu Lys Glu	
40 45 50	

gtc ctc agg gtc cct gaa ctt gct gaa tct gcc aaa gac tgg atg tca	307
Val Leu Arg Val Pro Glu Leu Ala Glu Ser Ala Lys Asp Trp Met Ser	
55 60 65 70	

agg tct gca aag aca aag aag gag aaa cct gca gaa aag ctt tat ccc	355
Arg Ser Ala Lys Thr Lys Lys Glu Lys Pro Ala Glu Lys Leu Tyr Pro	
75 80 85	

cag gca gag gag tcc agg gaa gtt tct gac agg agc cgg ctg cag gat	403
Gln Ala Glu Glu Ser Arg Glu Val Ser Asp Arg Ser Arg Leu Gln Asp	
90 95 100	

ggc ttc tgc cta cct gag tgg gac aac att gtg tgc tgg cct gct gga Gly Phe Cys Leu Pro Glu Trp Asp Asn Ile Val Cys Trp Pro Ala Gly 105 110 115	451
gtg ccc ggc aag gtg gtg gcc gtg ccc tgc ccc gac tac ttc tac gac Val Pro Gly Lys Val Val Ala Val Pro Cys Pro Asp Tyr Phe Tyr Asp 120 125 130	499
ttc aac cac aaa ggc cga gcc tat cgg cgc tgt gac agc aat ggc agc Phe Asn His Lys Gly Arg Ala Tyr Arg Arg Cys Asp Ser Asn Gly Ser 135 140 145 150	547
tgg gag ctg gtg cct ggg aac aac cgg aca tgg gcg aat tac agc gaa Trp Glu Leu Val Pro Gly Asn Asn Arg Thr Trp Ala Asn Tyr Ser Glu 155 160 165	595
tgt gtc aag ttt ctg acc aac gag acc cgg gaa cgg gaa gtc ttt gat Cys Val Lys Phe Leu Thr Asn Glu Thr Arg Glu Arg Glu Val Phe Asp 170 175 180	643
cgc ctc gga atg atc tac act gtg ggc tac tcc atc tct ctg ggc tcc Arg Leu Gly Met Ile Tyr Thr Val Gly Tyr Ser Ile Ser Leu Gly Ser 185 190 195	691
ctc act gtg gct gtg ctg att ctg ggt tac ttt agg agg tta cat tgc Leu Thr Val Ala Val Leu Ile Leu Gly Tyr Phe Arg Arg Leu His Cys 200 205 210	739
acc cga aac tac att cac atg cat ctc ttc gtg tcc ttt atg ctc cgg Thr Arg Asn Tyr Ile His Met His Leu Phe Val Ser Phe Met Leu Arg 215 220 225 230	787
gct gta agc atc ttc atc aag gat gct gtg ctc tac tcg ggg gtt tcc Ala Val Ser Ile Phe Ile Lys Asp Ala Val Leu Tyr Ser Gly Val Ser 235 240 245	835
aca gat gaa atc gag cgc atc acc gag gag gag ctg agg gcc ttc aca Thr Asp Glu Ile Glu Arg Ile Thr Glu Glu Glu Leu Arg Ala Phe Thr 250 255 260	883
gag cct ccc cct gct gac aag gcg ggt ttt gtg ggc tgc aga gtg gcg Glu Pro Pro Pro Ala Asp Lys Ala Gly Phe Val Gly Cys Arg Val Ala 265 270 275	931
gta acc gtc ttc ctt tac ttc ctg acc acc aac tac tac tgg atc ctg Val Thr Val Phe Leu Tyr Phe Leu Thr Thr Asn Tyr Tyr Trp Ile Leu 280 285 290	979
gtg gaa ggc ctc tac ctt cac agc ctc atc ttc atg gct ttt ttc tct Val Glu Gly Leu Tyr Leu His Ser Leu Ile Phe Met Ala Phe Phe Ser 295 300 305 310	1027
gag aaa aag tat ctc tgg ggt ttc aca tta ttt ggc tgg ggc ctc cct Glu Lys Lys Tyr Leu Trp Gly Phe Thr Leu Phe Gly Trp Gly Leu Pro 315 320 325	1075
gcc gtg ttt gtc gct gtg tgg gtg acc gtg agg gct aca ctg gcc aac Ala Val Phe Val Ala Val Trp Val Thr Val Arg Ala Thr Leu Ala Asn 330 335 340	1123

act gag tgc tgg gac ctg agt tcg ggg aat aag aaa tgg atc ata cag	1171
Thr Glu Cys Trp Asp Leu Ser Ser Gly Asn Lys Lys Trp Ile Ile Gln	
345 350 355	
gtg ccc atc ctg gca gct att gtg gtg aac ttt att ctt ttt atc aat	1219
Val Pro Ile Leu Ala Ala Ile Val Val Asn Phe Ile Leu Phe Ile Asn	
360 365 370	
ata atc aga gtc ctg gct act aaa ctc cgg gag acc aat gca ggg aga	1267
Ile Ile Arg Val Leu Ala Thr Lys Leu Arg Glu Thr Asn Ala Gly Arg	
375 380 385 390	
tgt gac acg agg caa cag tat aga aag ctg ctg aag tcc acg cta gtc	1315
Cys Asp Thr Arg Gln Gln Tyr Arg Lys Leu Leu Lys Ser Thr Leu Val	
395 400 405	
ctc atg ccg cta ttt ggg gtg cac tac atc gtc ttc atg gcc acg ccg	1363
Leu Met Pro Leu Phe Gly Val His Tyr Ile Val Phe Met Ala Thr Pro	
410 415 420	
tac aca gaa gta tca ggg att ctt tgg caa gtc caa atg cac tat gaa	1411
Tyr Thr Glu Val Ser Gly Ile Leu Trp Gln Val Gln Met His Tyr Glu	
425 430 435	
atg ctc ttc aat tca ttc cag gga ttt ttc gtt gcc att ata tac tgt	1459
Met Leu Phe Asn Ser Phe Gln Gly Phe Phe Val Ala Ile Ile Tyr Cys	
440 445 450	
ttc tgc aat gga gag gta caa gca gag atc aag aag tca tgg agc cga	1507
Phe Cys Asn Gly Glu Val Gln Ala Glu Ile Lys Lys Ser Trp Ser Arg	
455 460 465 470	
tgg acc ctg gcc ttg gac ttc aag cgg aag gcc cgg agt ggc agc agt	1555
Trp Thr Leu Ala Leu Asp Phe Lys Arg Lys Ala Arg Ser Gly Ser Ser	
475 480 485	
acc tac agc tat ggc ccc atg gtg tca cat aca agt gtc acc aat gtg	1603
Thr Tyr Ser Tyr Gly Pro Met Val Ser His Thr Ser Val Thr Asn Val	
490 495 500	
gga cct cga ggg ggc tgg cct tgt ccc tca gcc ctc gac tagctcctgg	1652
Gly Pro Arg Gly Gly Trp Pro Cys Pro Ser Ala Leu Asp	
505 510 515	
ggctggagcc agtgccaatg gccatcacca gttgcctggc tatgtgaagc atggttccat	1712
ttctgagAAC tcattgcctt catctggccc agagcctggc accaaagatg acgggtatct	1772
caatggctct ggactttatg agccaatggg tggggaacag cccctccac tcctggagga	1832
ggagagagag acagtcattgt gacccatata	1862

&lt;210&gt; 2

&lt;211&gt; 1863

&lt;212&gt; DNA

&lt;213&gt; Didelphoidea

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (98)...(1852)

&lt;400&gt; 2

tgggcacagc caccctgttg gtagtccagg ggccagccca ctgagctggc atatcagctg 60

gtggccccgt tggactcggc cctaggggaac ggcggcg atg gga gcg ccc cgg atc	115
Met Gly Ala Pro Arg Ile	
1 5	
tcg cac agc ctt gcc ttg ctc ctc tgc tgc tcc gtg ctc agc tcc gtc	163
Ser His Ser Leu Ala Leu Leu Leu Cys Cys Ser Val Leu Ser Ser Val	
10 15 20	
tac gca ctg gtg gat gcc gat gat gtc ata acg aag gag gag cag atc	211
Tyr Ala Leu Val Asp Ala Asp Asp Val Ile Thr Lys Glu Glu Gln Ile	
25 30 35	
att ctt ctg cgc aat gcc cag gcc cag tgt gag cag cgc ctg aaa gag	259
Ile Leu Leu Arg Asn Ala Gln Ala Gln Cys Glu Gln Arg Leu Lys Glu	
40 45 50	
gtc ctc agg gtc cct gaa ctt gct gaa tct gcc aaa gac tgg atg tca	307
Val Leu Arg Val Pro Glu Leu Ala Glu Ser Ala Lys Asp Trp Met Ser	
55 60 65 70	
agg tct gca aag aca aag aag gag aaa cct gca gaa aag ctt tat ccc	355
Arg Ser Ala Lys Thr Lys Lys Glu Lys Pro Ala Glu Lys Leu Tyr Pro	
75 80 85	
cag gca gag gag tcc agg gaa gtt tct gac agg agc cgg ctg cag gat	403
Gln Ala Glu Glu Ser Arg Glu Val Ser Asp Arg Ser Arg Leu Gln Asp	
90 95 100	
ggc ttc tgc cta cct gag tgg gac aac att gtg tgc tgg cct gct gga	451
Gly Phe Cys Leu Pro Glu Trp Asp Asn Ile Val Cys Trp Pro Ala Gly	
105 110 115	
gtg ccc ggc aag gtg gtg gcc gtg ccc tgc ccc gac tac ttc tac gac	499
Val Pro Gly Lys Val Val Ala Val Pro Cys Pro Asp Tyr Phe Tyr Asp	
120 125 130	
ttc aac cac aaa ggc cga gcc tat cgg cgc tgt gac agc aat ggc agc	547
Phe Asn His Lys Gly Arg Ala Tyr Arg Arg Cys Asp Ser Asn Gly Ser	
135 140 145 150	
tgg gag ctg gtg cct ggg aac aac cgg aca tgg gcg aat tac agc gaa	595
Trp Glu Leu Val Pro Gly Asn Asn Arg Thr Trp Ala Asn Tyr Ser Glu	
155 160 165	
tgt gtc aag ttt ctg acc aac gag acc cgg gaa cgg gaa gtc ttt gat	643
Cys Val Lys Phe Leu Thr Asn Glu Thr Arg Glu Arg Glu Val Phe Asp	
170 175 180	
cgc ctc gga atg atc tac act gtg ggc tac tcc atc tct ctg ggc tcc	691
Arg Leu Gly Met Ile Tyr Thr Val Gly Tyr Ser Ile Ser Leu Gly Ser	
185 190 195	
ctc act gtg gct gtg ctg att ctg ggt tac ttt agg agg tta cat tgc	739
Leu Thr Val Ala Val Leu Ile Leu Gly Tyr Phe Arg Arg Leu His Cys	
200 205 210	
acc cga aac tac att cac atg cat ctc ttc gtg tcc ttt atg ctc cgg	787
Thr Arg Asn Tyr Ile His Met His Leu Phe Val Ser Phe Met Leu Arg	
215 220 225 230	

gct gta agc atc ttc atc aag gat gct gtg ctc tac tcg ggg gtt tcc Ala Val Ser Ile Phe Ile Lys Asp Ala Val Leu Tyr Ser Gly Val Ser 235 240 245	835
aca gat gaa atc gag cgc atc acc gag gag gag ctg agg gcc ttc aca Thr Asp Glu Ile Glu Arg Ile Thr Glu Glu Glu Leu Arg Ala Phe Thr 250 255 260	883
gag cct ccc cct gct gac aag gcg ggt ttt gtg ggc tgc aga gtg gcg Glu Pro Pro Pro Ala Asp Lys Ala Gly Phe Val Gly Cys Arg Val Ala 265 270 275	931
gta acc gtc ttc ctt tac ttc ctg acc acc aac tac tac tgg atc ctg Val Thr Val Phe Leu Tyr Phe Leu Thr Thr Asn Tyr Tyr Trp Ile Leu 280 285 290	979
gtg gaa ggc ctc tac ctt cac agc ctc atc ttc atg gct ttt ttc tct Val Glu Gly Leu Tyr Leu His Ser Leu Ile Phe Met Ala Phe Phe Ser 295 300 305 310	1027
gag aaa aag tat ctc tgg ggt ttc aca tta ttt ggc tgg ggc ctc cct Glu Lys Lys Tyr Leu Trp Gly Phe Thr Leu Phe Gly Trp Gly Leu Pro 315 320 325	1075
gcc gtg ttt gtc gct gtg tgg gtg acc gtg agg gct aca ctg gcc aac Ala Val Phe Val Ala Val Trp Val Thr Val Arg Ala Thr Leu Ala Asn 330 335 340	1123
act gag tgc tgg gac ctg agt tcg ggg aat aag aaa tgg atc ata cag Thr Glu Cys Trp Asp Leu Ser Ser Gly Asn Lys Lys Trp Ile Ile Gln 345 350 355	1171
gtg ccc atc ctg gca gct att gtg gtg aac ttt att ctt ttt atc aat Val Pro Ile Leu Ala Ala Ile Val Val Asn Phe Ile Leu Phe Ile Asn 360 365 370	1219
ata atc aga gtc ctg gct act aaa ctc cgg gag acc aat gca ggg aga Ile Ile Arg Val Leu Ala Thr Lys Leu Arg Glu Thr Asn Ala Gly Arg 375 380 385 390	1267
tgt gac acg agg caa cag tat aga aag ctg ctg aag tcc acg cta gtc Cys Asp Thr Arg Gln Gln Tyr Arg Lys Leu Leu Lys Ser Thr Leu Val 395 400 405	1315
ctc atg ccg cta ttt ggg gtg cac tac atc gtc ttc atg gcc acg ccg Leu Met Pro Leu Phe Gly Val His Tyr Ile Val Phe Met Ala Thr Pro 410 415 420	1363
tac aca gaa gta tca ggg att ctt tgg caa gtc caa atg cac tat gaa Tyr Thr Glu Val Ser Gly Ile Leu Trp Gln Val Gln Met His Tyr Glu 425 430 435	1411
atg ctc ttc aat tca ttc cag gga ttt ttc gtt gcc att ata tac tgt Met Leu Phe Asn Ser Phe Gln Gly Phe Phe Val Ala Ile Ile Tyr Cys 440 445 450	1459
ttc tgc aat gga gag gta caa gca gag atc aag aag tca tgg agc cga Phe Cys Asn Gly Glu Val Gln Ala Glu Ile Lys Lys Ser Trp Ser Arg 455 460 465 470	1507

tgg acc ctg gcc ttg gac ttc aag cgg aag gcc cgg agt ggc agc agt Trp Thr Leu Ala Leu Asp Phe Lys Arg Lys Ala Arg Ser Gly Ser Ser 475                    480                    485	1555	
acc tac agc tat ggc ccc atg gtg tca cat aca agt gtc acc aat gtg Thr Tyr Ser Tyr Gly Pro Met Val Ser His Thr Ser Val Thr Asn Val 490                    495                    500	1603	
gga cct cga ggg ggg ctg gcc ttg tcc ctc agc cct cga cta gct cct Gly Pro Arg Gly Gly Leu Ala Leu Ser Leu Ser Pro Arg Leu Ala Pro 505                    510                    515	1651	
ggg gct gga gcc agt gcc aat ggc cat cac cag ttg cct ggc tat gtg Gly Ala Gly Ala Ser Ala Asn Gly His His Gln Leu Pro Gly Tyr Val 520                    525                    530	1699	
aag cat ggt tcc att tct gag aac tca ttg cct tca tct ggc cca gag Lys His Gly Ser Ile Ser Glu Asn Ser Leu Pro Ser Ser Gly Pro Glu 535                    540                    545                    550	1747	
cct ggc acc aaa gat gac ggg tat ctc aat ggc tct gga ctt tat gag Pro Gly Thr Lys Asp Asp Gly Tyr Leu Asn Gly Ser Gly Leu Tyr Glu 555                    560                    565	1795	
cca atg gtt ggg gaa cag ccc cct cca ctc ctg gag gag gag aga gag Pro Met Val Gly Glu Gln Pro Pro Pro Leu Leu Glu Glu Glu Arg Glu 570                    575                    580	1843	
aca gtc atg tgacccatat c Thr Val Met 585	1863	
<210> 3 <211> 2051 <212> DNA <213> Rattus rattus		
<220> <221> CDS <222> (73)...(1845)		
<400> 3 ggcggggggcc gcggcgggcga gctcggaggc cggcgggcggc tgccccgagg gacgcggccc taggcggtgg cg atg ggg gcc gcc cgg atc gca ccc agc ctg gcg ctc cta Met Gly Ala Ala Arg Ile Ala Pro Ser Leu Ala Leu Leu 1                    5                    10		60 111
ctc tgc tgc cca gtg ctc agc tcc gca tat gcg ctg gtg gat gcg gac Leu Cys Cys Pro Val Leu Ser Ser Ala Tyr Ala Leu Val Asp Ala Asp 15                    20                    25	159	
gat gtc ttt acc aaa gag gaa cag att ttc ctg ctg cac cgt gcc cag Asp Val Phe Thr Lys Glu Glu Gln Ile Phe Leu Leu His Arg Ala Gln 30                    35                    40                    45	207	
gcg caa tgt gac aag ctg ctc aag gaa gtt ctg cac aca gca gcc aac Ala Gln Cys Asp Lys Leu Leu Lys Glu Val Leu His Thr Ala Ala Asn 50                    55                    60	255	

ata atg gag tca gac aag ggc tgg aca cca gca tct acg tca ggg aag Ile Met Glu Ser Asp Lys Gly Trp Thr Pro Ala Ser Thr Ser Gly Lys 65 70 75	303
ccc agg aaa gag aag gca tgc gga aag ttc tac cct gag tct aaa gag Pro Arg Lys Glu Lys Ala Ser Gly Lys Phe Tyr Pro Glu Ser Lys Glu 80 85 90	351
aac aag gac gtg ccc acc ggc agc agg cgc aga ggg cgt ccc tgt ctg Asn Lys Asp Val Pro Thr Gly Ser Arg Arg Arg Gly Arg Pro Cys Leu 95 100 105	399
ccc gag tgg gac aac atc gtt tgc tgg cca tta ggg gca cca ggt gaa Pro Glu Trp Asp Asn Ile Val Cys Trp Pro Leu Gly Ala Pro Gly Glu 110 115 120 125	447
gtg gtg gca gta cct tgt ccc gat tac att tat gac ttc aat cac aaa Val Val Ala Val Pro Cys Pro Asp Tyr Ile Tyr Asp Phe Asn His Lys 130 135 140	495
ggc cat gcc tac aga cgc tgt gac cgc aat ggc agc tgg gag gtg gtt Gly His Ala Tyr Arg Arg Cys Asp Asn Gly Ser Trp Glu Val Val 145 150 155	543
cca ggg cac aac cgg acg tgg gcc aac tac agc gag tgc ctc aag ttc Pro Gly His Asn Arg Thr Trp Ala Asn Tyr Ser Glu Cys Leu Lys Phe 160 165 170	591
atg acc aat gag acg cgg gaa cgg gag gta ttt gac cgc cta ggc atg Met Thr Asn Glu Thr Arg Glu Arg Glu Val Phe Asp Arg Leu Gly Met 175 180 185	639
atc tac acc gtg gga tac tcc atg tct ctc gcc tcc ctc acg gtg gct Ile Tyr Thr Val Gly Tyr Ser Met Ser Leu Ala Ser Leu Thr Val Ala 190 195 200 205	687
gtg ctc atc ctg gcc tat ttt agg cgg ctg cac tgc acg cgc aac tac Val Leu Ile Leu Ala Tyr Phe Arg Arg Leu His Cys Thr Arg Asn Tyr 210 215 220	735
atc cac atg cac atg ttc ctg tgc ttt atg ctg cgc gcc gcg agc atc Ile His Met His Met Phe Leu Ser Phe Met Leu Arg Ala Ala Ser Ile 225 230 235	783
ttc gtg aag gac gct gtg ctc tac tct ggc ttc acg ctg gat gag gcc Phe Val Lys Asp Ala Val Leu Tyr Ser Gly Phe Thr Leu Asp Glu Ala 240 245 250	831
gag cgc ctc aca gag gaa gag ttg cac atc atc gcg cag gtg cca cct Glu Arg Leu Thr Glu Glu Glu Leu His Ile Ile Ala Gln Val Pro Pro 255 260 265	879
ccg ccg gcc gct gcc gcc gta ggc tac gct ggc tgc cgc gtg gcg gtg Pro Pro Ala Ala Ala Val Gly Tyr Ala Gly Cys Arg Val Ala Val 270 275 280 285	927
acc ttc ttc ctc tac ttc ctg gct acc aac tac tac tgg att ctg gtg Thr Phe Phe Leu Tyr Phe Leu Ala Thr Asn Tyr Tyr Trp Ile Leu Val 290 295 300	975

gag ggg ctg tac ttg cac agc ctc atc ttc atg gcc ttt ttc tca gag	1023
Glu Gly Leu Tyr Leu His Ser Leu Ile Phe Met Ala Phe Phe Ser Glu	
305 310 315	
aag aag tac ctg tgg ggc ttc acc atc ttt ggc tgg ggt cta ccg gct	1071
Lys Lys Tyr Leu Trp Gly Phe Thr Ile Phe Gly Trp Gly Leu Pro Ala	
320 325 330	
gtc ttc gtg gct gtg tgg gtc ggt gtc aga gca acc ttg gcc aac act	1119
Val Phe Val Ala Val Trp Val Gly Val Arg Ala Thr Leu Ala Asn Thr	
335 340 345	
ggg tgc tgg gat ctg agc tcc ggg cac aag aag tgg atc atc cag gtg	1167
Gly Cys Trp Asp Leu Ser Ser Gly His Lys Lys Trp Ile Ile Gln Val	
350 355 360 365	
ccc atc ctg gca tct gtt gtg ctc aac ttc atc ctt ttt atc aac atc	1215
Pro Ile Leu Ala Ser Val Val Leu Asn Phe Ile Leu Phe Ile Asn Ile	
370 375 380	
atc cgg gtg ctt gcc act aag ctt cgg gag acc aat gcg ggc cgg tgt	1263
Ile Arg Val Leu Ala Thr Lys Leu Arg Glu Thr Asn Ala Gly Arg Cys	
385 390 395	
gac acc agg cag cag tac cgg aag ctg ctc agg tcc acg ttg gtg ctc	1311
Asp Thr Arg Gln Gln Tyr Arg Lys Leu Leu Arg Ser Thr Leu Val Leu	
400 405 410	
gtg ccg ctc ttt ggt gtc cac tac acc gtc ttc atg gcc ttg ccg tac	1359
Val Pro Leu Phe Gly Val His Tyr Thr Val Phe Met Ala Leu Pro Tyr	
415 420 425	
acc gag gtc tca ggg aca ttg tgg cag atc cag atg cat tat gag atg	1407
Thr Glu Val Ser Gly Thr Leu Trp Gln Ile Gln Met His Tyr Glu Met	
430 435 440 445	
ctc ttc aac tcc ttc cag gga ttt ttt gtt gcc atc ata tac tgt ttc	1455
Leu Phe Asn Ser Phe Gln Gly Phe Phe Val Ala Ile Ile Tyr Cys Phe	
450 455 460	
tgc aat ggt gag gtg cag gca gag att agg aag tca tgg agc cgc tgg	1503
Cys Asn Gly Glu Val Gln Ala Glu Ile Arg Lys Ser Trp Ser Arg Trp	
465 470 475	
aca ctg gcg ttg gac ttc aag cgc aaa gca cga agt ggg agt agc agc	1551
Thr Leu Ala Leu Asp Phe Lys Arg Lys Ala Arg Ser Gly Ser Ser Ser	
480 485 490	
tac agc tat ggc cca atg gtg tct cac acg agt gtg acc aat gtg ggc	1599
Tyr Ser Tyr Gly Pro Met Val Ser His Thr Ser Val Thr Asn Val Gly	
495 500 505	
ccc cgt gca gga ctc agc ctc ccc ctc agc ccc cgc ctg cct cct gcc	1647
Pro Arg Ala Gly Leu Ser Leu Pro Leu Ser Pro Arg Leu Pro Pro Ala	
510 515 520 525	
act acc aat ggc cac tcc cag ctg cct ggc cat gcc aag cca ggg gct	1695
Thr Thr Asn Gly His Ser Gln Leu Pro Gly His Ala Lys Pro Gly Ala	
530 535 540	



cca gcc act gag act gaa acc cta cca gtc act atg gcg gtt ccc aag	1743
Pro Ala Thr Glu Thr Glu Thr Leu Pro Val Thr Met Ala Val Pro Lys	
545 550 555	
 gac gat gga ttc ctt aac ggc tcc tgc tca ggc ctg gat gag gag gcc	1791
Asp Asp Gly Phe Leu Asn Gly Ser Cys Ser Gly Leu Asp Glu Glu Ala	
560 565 570	
 tcc ggg tct gcg cgg ccg cct cca ttg ttg cag gaa gga tgg gaa aca	1839
Ser Gly Ser Ala Arg Pro Pro Leu Leu Gln Glu Gly Trp Glu Thr	
575 580 585	
 gtc atg tgactgggca ctagggggct agactgctgg cctgggcaca tggacagatg	1895
Val Met	
590	
 gaccaagaag ccagtgtttg gctggttgct tattcgggat ctggaccagg aagataacaa	1955
aaggaaaatg gaagtggacg aagcagagaa gaaggaagag gttttgcagg aattaaatat	2015
gtttcctcag ttggatgatg aggacacaag gaaggc	2051
 <210> 4	
<211> 2010	
<212> DNA	
<213> Homo sapiens	
 <220>	
<221> CDS	
<222> (28)...(1806)	
 <400> 4	
gggatccccgc ggccctaggc ggtggcg atg ggg acc gcc cgg atc gca ccc ggc	54
Met Gly Thr Ala Arg Ile Ala Pro Gly	
1 5	
 ctg gcg ctc ctg ctc tgc tgc ccc gtg ctc agc tcc gcg tac gcg ctg	102
Leu Ala Leu Leu Leu Cys Cys Pro Val Leu Ser Ser Ala Tyr Ala Leu	
10 15 20 25	
 gtg gat gca gat gac gtc atg act aaa gag gaa cag atc ttc ctg ctg	150
Val Asp Ala Asp Asp Val Met Thr Lys Glu Glu Gln Ile Phe Leu Leu	
30 35 40	
 cac cgt gct cag gcc cag tgc gaa aaa cgg ctc aag gag gtc ctg cag	198
His Arg Ala Gln Ala Gln Cys Glu Lys Arg Leu Lys Glu Val Leu Gln	
45 50 55	
 agg cca gcc agc ata atg gaa tca gac aag gga tgg aca tct gcg tcc	246
Arg Pro Ala Ser Ile Met Glu Ser Asp Lys Gly Trp Thr Ser Ala Ser	
60 65 70	
 aca tca ggg aag ccc agg aaa gat aag gca tct ggg aag ctc tac cct	294
Thr Ser Gly Lys Pro Arg Lys Asp Lys Ala Ser Gly Lys Leu Tyr Pro	
75 80 85	
 gag tct gag gag gac aag gag gca ccc act ggc agc agg tac cga ggg	342
Glu Ser Glu Glu Asp Lys Glu Ala Pro Thr Gly Ser Arg Tyr Arg Gly	
90 95 100 105	
 cgc ccc tgt ctg ccg gaa tgg gac cac atc ctg tgc tgg ccg ctg ggg	390
Arg Pro Cys Leu Pro Glu Trp Asp His Ile Leu Cys Trp Pro Leu Gly	
110 115 120	

gca cca ggt gag gtg gtg gct gtg ccc tgt ccg gac tac att tat gac	438
Ala Pro Gly 125 Val Val Ala Val Pro Cys Pro Asp Tyr 135 Ile Tyr Asp	
ttc aat cac aaa ggc cat gcc tac cga cgc tgt gac cgc aat ggc agc	486
Phe Asn His 140 Lys Gly His Ala Tyr 145 Arg Arg Cys Asp Arg Asn Gly Ser	
tgg gag ctg gtg cct ggg cac aac agg acg tgg gcc aac tac agc gag	534
Trp Glu Leu Val Pro Gly His Asn Arg Thr Trp Ala Asn Tyr Ser Glu	
155 160 165	
tgt gtc aaa ttt ctc acc aat gag act cgt gaa cgg gag gtg ttt gac	582
Cys Val Lys Phe Leu Thr 175 Asn Glu Thr Arg Glu Arg Glu Val Phe Asp	
170 180 185	
cgc ctg ggc atg att tac acc gtg ggc tac tcc gtg tcc ctg gcg tcc	630
Arg Leu Gly Met Ile Tyr Thr Val Gly Tyr Ser Val Ser Leu Ala Ser	
190 195 200	
ctc acc gta gct gtg ctc atc ctg gcc tac ttt agg cgg ctg cac tgc	678
Leu Thr Val 205 Ala Val Leu Ile Leu Ala Tyr Phe Arg Arg Leu His Cys	
210 215	
acg cgc aac tac atc cac atg cac ctg ttc ctg tcc ttc atg ctg cgc	726
Thr Arg Asn 220 Tyr Ile His Met His Leu Phe Leu Ser Phe Met Leu Arg	
225 230	
gcc gtg agc atc ttc gtc aag gac gct gtg ctc tac tct ggc gcc acg	774
Ala Val Ser Ile Phe Val Lys Asp Ala Val Leu Tyr Ser Gly Ala Thr	
235 240 245	
ctt gat gag gct gag cgc ctc acc gag gag gag ctg cgc gcc atc gcc	822
Leu Asp Glu Ala Glu Arg Leu Thr Glu Glu Glu Leu Arg Ala Ile Ala	
250 255 260 265	
cag gcg ccc ccg ccg cct gcc acc gcc gct gcc ggc tac gcg ggc tgc	870
Gln Ala Pro Pro 270 Pro Ala Thr Ala Ala Gly Tyr Ala Gly Cys	
275 280	
agg gtg gct gtg acc ttc ttc ctt tac ttc ctg gcc acc aac tac tac	918
Arg Val Ala Val Thr Phe Phe Leu Tyr Phe Leu Ala Thr Asn Tyr Tyr	
285 290 295	
tgg att ctg gtg gag ggg ctg tac ctg cac agc ctc atc ttc atg gcc	966
Trp Ile Leu Val Glu Gly Leu Tyr Leu His Ser Leu Ile Phe Met Ala	
300 305 310	
ttc ttc tca gag aag aag tac ctg tgg ggc ttc aca gtc ttc ggc tgg	1014
Phe Phe Ser Glu Lys Lys Tyr Leu Trp Gly Phe Thr Val Phe Gly Trp	
315 320 325	
ggt ctg ccc gct gtc ttc gtg gct gtg tgg gtc agt gtc aga gct acc	1062
Gly Leu Pro Ala Val Phe Val Ala Val Trp Val Ser Val Arg Ala Thr	
330 335 340 345	
ctg gcc aac acc ggg tgc tgg gac ttg agc tcc ggg aac aaa aag tgg	1110
Leu Ala Asn Thr Gly Cys Trp Asp Leu Ser Ser Gly Asn Lys Lys Trp	
350 355 360	

atc atc cag gtg ccc atc ctg gcc tcc att gtg ctc aac ttc atc ctc Ile Ile Gln Val Pro Ile Leu Ala Ser Ile Val Leu Asn Phe Ile Leu 365 370 375	1158
ttc atc aat atc gtc cgg gtg ctc gcc acc aag cag cgg gag acc aac Phe Ile Asn Ile Val Arg Val Leu Ala Thr Lys Gln Arg Glu Thr Asn 380 385 390	1206
gcc ggc cgg tgt gac aca cgg cag cag tac cgg aag ctg ctc aaa tcc Ala Gly Arg Cys Asp Thr Arg Gln Gln Tyr Arg Lys Leu Leu Lys Ser 395 400 405	1254
acg ctg gtg ctc atg ccc ctc ttt ggc gtc cac tac att gtc ttc atg Thr Leu Val Leu Met Pro Leu Phe Gly Val His Tyr Ile Val Phe Met 410 415 420 425	1302
gcc aca cca tac acc gag gtc tca ggg acg ctc tgg caa gtc cag atg Ala Thr Pro Tyr Thr Glu Val Ser Gly Thr Leu Trp Gln Val Gln Met 430 435 440	1350
cac tat gag atg ctc ttc aac tcc ttc cag gga ttt ttt gtc gca atc His Tyr Glu Met Leu Phe Asn Ser Phe Gln Gly Phe Phe Val Ala Ile 445 450 455	1398
ata tac tgt ttc tgc aat ggc gag gta caa gct gag atc aag aaa tct Ile Tyr Cys Phe Cys Asn Gly Glu Val Gln Ala Glu Ile Lys Lys Ser 460 465 470	1446
tgg agc cgc tgg aca ctg gca ctg gac ttc aag cga aag gca cgc agc Trp Ser Arg Trp Thr Leu Ala Leu Asp Phe Lys Arg Lys Ala Arg Ser 475 480 485	1494
ggg agc agc agc tat agc tac ggc ccc atg gtg tcc cac aca agt gtg Gly Ser Ser Ser Tyr Ser Tyr Gly Pro Met Val Ser His Thr Ser Val 490 495 500 505	1542
acc aat gtc ggc ccc cgt gtg gga ctc ggc ctg ccc ctc agc ccc cgc Thr Asn Val Gly Pro Arg Val Gly Leu Gly Leu Pro Leu Ser Pro Arg 510 515 520	1590
cta ctg ccc act gcc acc acc aac ggc cac cct cag ctg cct ggc cat Leu Leu Pro Thr Ala Thr Thr Asn Gly His Pro Gln Leu Pro Gly His 525 530 535	1638
gcc aag cca ggg acc cca gcc ctg gag acc ctc gag acc aca cca cct Ala Lys Pro Gly Thr Pro Ala Leu Glu Thr Leu Glu Thr Pro Pro 540 545 550	1686
gcc atg gct gct ccc aag gac gat ggg ttc ctc aac ggc tcc tgc tca Ala Met Ala Ala Pro Lys Asp Asp Gly Phe Leu Asn Gly Ser Cys Ser 555 560 565	1734
ggc ctg gac gag gag gcc tct ggg cct gag cgg cca cct gcc ctg cta Gly Leu Asp Glu Glu Ala Ser Gly Pro Glu Arg Pro Pro Ala Leu Leu 570 575 580 585	1782
cag gaa gag tgg gag aca gtc atg tgaccaggcg ctgggggctg gacctgctga Gln Glu Glu Trp Glu Thr Val Met 590	1836
catagtggat ggacagatgg accaaaagat gggtggttga atgatttccc actcagggcc tggggccaag aggaaaaaac aggggaaaaa agaaaaaaa aagaaaaaag gaaaaaaa	1896 1956

2010

```
<400> 8
Tyr Xaa Arg Ala Thr Leu Ala Asn Thr Gly Cys Trp Asp Leu Ser Ser
  1          5          10          15
Gly His Lys Lys Trp Ile Ile Gln Val Pro
      20          25
```

<210> 9  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> binding; 1st to last; peptide fragment

<400> 9  
 Pro Tyr Thr Glu Tyr Ser Gly Thr Leu Trp Gln Ile Gln Met His Tyr  
   1                  5                  10                  15  
 Glu Met

<210> 10  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> binding; 1st to last; peptide fragment

<400> 10  
 Asp Asp Val Phe Thr Lys Glu Glu Gln Ile Phe Leu Leu His Arg Ala  
   1                  5                  10                  15  
 Gln Ala

<210> 11  
 <211> 10  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> binding; 1st to last; peptide fragment

<400> 11  
 Phe Phe Arg Leu His Cys Thr Arg Asn Tyr  
   1                  5                  10

<210> 12  
 <211> 10  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> binding; 1st to last; peptide fragment

<400> 12  
 Glu Lys Lys Tyr Leu Trp Gly Phe Thr Leu  
   1                  5                  10

<210> 13  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> binding; 1st to last; peptide fragment

<400> 13  
 Val Leu Ala Thr Lys Leu Arg Glu Thr Asn Ala Gly Arg Cys Asp Thr  
           1                  5                  10                  15  
 Arg Gln Gln Tyr Arg Lys Leu Leu Lys  
                   20                  25

<210> 14  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> 1st to last; primer

<400> 14  
 agatgaggct gtgcaggt 18

<210> 15  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> 1st to last; primer

<400> 15  
 ggaattccat gggagcggcc cggat 25

<210> 16  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> 1st to last; primer

<400> 16  
 cgggatcccg cggccctagg cggat 24

<210> 17  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> 1st to last; primer

<400> 17  
 agtatagcgt ccttgacga 19

<210> 18  
 <211> 515  
 <212> PRT  
 <213> Didelphoidea

<400> 18  
 Met Gly Ala Pro Arg Ile Ser His Ser Leu Ala Leu Leu Cys Cys  
           1                  5                  10                  15  
 Ser Val Leu Ser Ser Val Tyr Ala Leu Val Asp Ala Asp Asp Val Ile  
                   20                  25                  30  
 Thr Lys Glu Glu Gln Ile Ile Leu Leu Arg Asn Ala Gln Ala Gln Cys  
           35                  40                  45

[illegible]

<210> 19  
 <211> 585  
 <212> PRT  
 <213> Didelphoidea

<400> 19  
 Met Gly Ala Pro Arg Ile Ser His Ser Leu Ala Leu Leu Leu Cys Cys  
 1 5 10 15  
 Ser Val Leu Ser Val Tyr Ala Leu Val Asp Ala Asp Asp Val Ile  
 20 25 30  
 Thr Lys Glu Glu Gln Ile Ile Leu Leu Arg Asn Ala Gln Ala Gln Cys  
 35 40 45  
 Glu Gln Arg Leu Lys Glu Val Leu Arg Val Pro Glu Leu Ala Glu Ser  
 50 55 60  
 Ala Lys Asp Trp Met Ser Arg Ser Ala Lys Thr Lys Lys Glu Lys Pro  
 65 70 75 80  
 Ala Glu Lys Leu Tyr Pro Gln Ala Glu Glu Ser Arg Glu Val Ser Asp  
 85 90 95  
 Arg Ser Arg Leu Gln Asp Gly Phe Cys Leu Pro Glu Trp Asp Asn Ile  
 100 105 110  
 Val Cys Trp Pro Ala Gly Val Pro Gly Lys Val Val Ala Val Pro Cys  
 115 120 125  
 Pro Asp Tyr Phe Tyr Asp Phe Asn His Lys Gly Arg Ala Tyr Arg Arg  
 130 135 140  
 Cys Asp Ser Asn Gly Ser Trp Glu Leu Val Pro Gly Asn Asn Arg Thr  
 145 150 155 160  
 Trp Ala Asn Tyr Ser Glu Cys Val Lys Phe Leu Thr Asn Glu Thr Arg  
 165 170 175  
 Glu Arg Glu Val Phe Asp Arg Leu Gly Met Ile Tyr Thr Val Gly Tyr  
 180 185 190  
 Ser Ile Ser Leu Gly Ser Leu Thr Val Ala Val Leu Ile Leu Gly Tyr  
 195 200 205  
 Phe Arg Arg Leu His Cys Thr Arg Asn Tyr Ile His Met His Leu Phe  
 210 215 220  
 Val Ser Phe Met Leu Arg Ala Val Ser Ile Phe Ile Lys Asp Ala Val  
 225 230 235 240  
 Leu Tyr Ser Gly Val Ser Thr Asp Glu Ile Glu Arg Ile Thr Glu Glu  
 245 250 255  
 Glu Leu Arg Ala Phe Thr Glu Pro Pro Ala Asp Lys Ala Gly Phe  
 260 265 270  
 Val Gly Cys Arg Val Ala Val Thr Val Phe Leu Tyr Phe Leu Thr Thr  
 275 280 285  
 Asn Tyr Tyr Trp Ile Leu Val Glu Gly Leu Tyr Leu His Ser Leu Ile  
 290 295 300  
 Phe Met Ala Phe Phe Ser Glu Lys Lys Tyr Leu Trp Gly Phe Thr Leu  
 305 310 315 320  
 Phe Gly Trp Gly Leu Pro Ala Val Phe Val Ala Val Trp Val Thr Val  
 325 330 335  
 Arg Ala Thr Leu Ala Asn Thr Glu Cys Trp Asp Leu Ser Ser Gly Asn  
 340 345 350  
 Lys Lys Trp Ile Ile Gln Val Pro Ile Leu Ala Ala Ile Val Val Asn  
 355 360 365  
 Phe Ile Leu Phe Ile Asn Ile Ile Arg Val Leu Ala Thr Lys Leu Arg  
 370 375 380  
 Glu Thr Asn Ala Gly Arg Cys Asp Thr Arg Gln Gln Tyr Arg Lys Leu  
 385 390 395 400  
 Leu Lys Ser Thr Leu Val Leu Met Pro Leu Phe Gly Val His Tyr Ile  
 405 410 415  
 Val Phe Met Ala Thr Pro Tyr Thr Glu Val Ser Gly Ile Leu Trp Gln  
 420 425 430  
 Val Gln Met His Tyr Glu Met Leu Phe Asn Ser Phe Gln Gly Phe Phe  
 435 440 445



Val	Ala	Ile	Ile	Tyr	Cys	Phe	Cys	Asn	Gly	Glu	Val	Gln	Ala	Glu	Ile
450						455					460				
Lys	Lys	Ser	Trp	Ser	Arg	Trp	Thr	Leu	Ala	Leu	Asp	Phe	Lys	Arg	Lys
465					470					475					480
Ala	Arg	Ser	Gly	Ser	Ser	Thr	Tyr	Ser	Tyr	Gly	Pro	Met	Val	Ser	His
				485					490					495	
Thr	Ser	Val	Thr	Asn	Val	Gly	Pro	Arg	Gly	Gly	Leu	Ala	Leu	Ser	Leu
			500					505					510		
Ser	Pro	Arg	Leu	Ala	Pro	Gly	Ala	Gly	Ala	Ser	Ala	Asn	Gly	His	His
		515					520					525			
Gln	Leu	Pro	Gly	Tyr	Val	Lys	His	Gly	Ser	Ile	Ser	Glu	Asn	Ser	Leu
	530					535					540				
Pro	Ser	Ser	Gly	Pro	Glu	Pro	Gly	Thr	Lys	Asp	Asp	Gly	Tyr	Leu	Asn
545					550					555					560
Gly	Ser	Gly	Leu	Tyr	Glu	Pro	Met	Val	Gly	Glu	Gln	Pro	Pro	Pro	Leu
				565					570						575
Leu	Glu	Glu	Glu	Arg	Glu	Thr	Val	Met							
			580					585							

<210> 20  
 <211> 591  
 <212> PRT  
 <213> Rattus rattus

<400> 20

Met	Gly	Ala	Ala	Arg	Ile	Ala	Pro	Ser	Leu	Ala	Leu	Leu	Leu	Cys	Cys
1				5					10					15	
Pro	Val	Leu	Ser	Ser	Ala	Tyr	Ala	Leu	Val	Asp	Ala	Asp	Asp	Val	Phe
			20					25					30		
Thr	Lys	Glu	Glu	Gln	Ile	Phe	Leu	Leu	His	Arg	Ala	Gln	Ala	Gln	Cys
		35					40					45			
Asp	Lys	Leu	Leu	Lys	Glu	Val	Leu	His	Thr	Ala	Ala	Asn	Ile	Met	Glu
	50					55					60				
Ser	Asp	Lys	Gly	Trp	Thr	Pro	Ala	Ser	Thr	Ser	Gly	Lys	Pro	Arg	Lys
	65				70					75					80
Glu	Lys	Ala	Ser	Gly	Lys	Phe	Tyr	Pro	Glu	Ser	Lys	Glu	Asn	Lys	Asp
				85					90					95	
Val	Pro	Thr	Gly	Ser	Arg	Arg	Arg	Gly	Arg	Pro	Cys	Leu	Pro	Glu	Trp
			100					105					110		
Asp	Asn	Ile	Val	Cys	Trp	Pro	Leu	Gly	Ala	Pro	Gly	Glu	Val	Val	Ala
		115					120					125			
Val	Pro	Cys	Pro	Asp	Tyr	Ile	Tyr	Asp	Phe	Asn	His	Lys	Gly	His	Ala
	130					135					140				
Tyr	Arg	Arg	Cys	Asp	Arg	Asn	Gly	Ser	Trp	Glu	Val	Val	Pro	Gly	His
	145				150					155					160
Asn	Arg	Thr	Trp	Ala	Asn	Tyr	Ser	Glu	Cys	Leu	Lys	Phe	Met	Thr	Asn
			165						170					175	
Glu	Thr	Arg	Glu	Arg	Glu	Val	Phe	Asp	Arg	Leu	Gly	Met	Ile	Tyr	Thr
			180					185					190		
Val	Gly	Tyr	Ser	Met	Ser	Leu	Ala	Ser	Leu	Thr	Val	Ala	Val	Leu	Ile
		195					200					205			
Leu	Ala	Tyr	Phe	Arg	Arg	Leu	His	Cys	Thr	Arg	Asn	Tyr	Ile	His	Met
	210					215					220				
His	Met	Phe	Leu	Ser	Phe	Met	Leu	Arg	Ala	Ala	Ser	Ile	Phe	Val	Lys
	225				230					235					240
Asp	Ala	Val	Leu	Tyr	Ser	Gly	Phe	Thr	Leu	Asp	Glu	Ala	Glu	Arg	Leu
				245					250					255	
Thr	Glu	Glu	Glu	Leu	His	Ile	Ile	Ala	Gln	Val	Pro	Pro	Pro	Pro	Ala
			260					265					270		
Ala	Ala	Ala	Val	Gly	Tyr	Ala	Gly	Cys	Arg	Val	Ala	Val	Thr	Phe	Phe
			275				280						285		

Leu Tyr Phe Leu Ala Thr Asn Tyr Tyr Trp Ile Leu Val Glu Gly Leu  
 290 295 300  
 Tyr Leu His Ser Leu Ile Phe Met Ala Phe Phe Ser Glu Lys Lys Tyr  
 305 310 315 320  
 Leu Trp Gly Phe Thr Ile Phe Gly Trp Gly Leu Pro Ala Val Phe Val  
 325 330 335  
 Ala Val Trp Val Gly Val Arg Ala Thr Leu Ala Asn Thr Gly Cys Trp  
 340 345 350  
 Asp Leu Ser Ser Gly His Lys Lys Trp Ile Ile Gln Val Pro Ile Leu  
 355 360 365  
 Ala Ser Val Val Leu Asn Phe Ile Leu Phe Ile Asn Ile Ile Arg Val  
 370 375 380  
 Leu Ala Thr Lys Leu Arg Glu Thr Asn Ala Gly Arg Cys Asp Thr Arg  
 385 390 395 400  
 Gln Gln Tyr Arg Lys Leu Leu Arg Ser Thr Leu Val Leu Val Pro Leu  
 405 410 415  
 Phe Gly Val His Tyr Thr Val Phe Met Ala Leu Pro Tyr Thr Glu Val  
 420 425 430  
 Ser Gly Thr Leu Trp Gln Ile Gln Met His Tyr Glu Met Leu Phe Asn  
 435 440 445  
 Ser Phe Gln Gly Phe Phe Val Ala Ile Ile Tyr Cys Phe Cys Asn Gly  
 450 455 460  
 Glu Val Gln Ala Glu Ile Arg Lys Ser Trp Ser Arg Trp Thr Leu Ala  
 465 470 475 480  
 Leu Asp Phe Lys Arg Lys Ala Arg Ser Gly Ser Ser Ser Tyr Ser Tyr  
 485 490 495  
 Gly Pro Met Val Ser His Thr Ser Val Thr Asn Val Gly Pro Arg Ala  
 500 505 510  
 Gly Leu Ser Leu Pro Leu Ser Pro Arg Leu Pro Pro Ala Thr Thr Asn  
 515 520 525  
 Gly His Ser Gln Leu Pro Gly His Ala Lys Pro Gly Ala Pro Ala Thr  
 530 535 540  
 Glu Thr Glu Thr Leu Pro Val Thr Met Ala Val Pro Lys Asp Asp Gly  
 545 550 555 560  
 Phe Leu Asn Gly Ser Cys Ser Gly Leu Asp Glu Glu Ala Ser Gly Ser  
 565 570 575  
 Ala Arg Pro Pro Pro Leu Leu Gln Glu Gly Trp Glu Thr Val Met  
 580 585 590

<210> 21  
 <211> 593  
 <212> PRT  
 <213> Homo sapiens

<400> 21  
 Met Gly Thr Ala Arg Ile Ala Pro Gly Leu Ala Leu Leu Leu Cys Cys  
 1 5 10 15  
 Pro Val Leu Ser Ser Ala Tyr Ala Leu Val Asp Ala Asp Asp Val Met  
 20 25 30  
 Thr Lys Glu Glu Gln Ile Phe Leu Leu His Arg Ala Gln Ala Gln Cys  
 35 40 45  
 Glu Lys Arg Leu Lys Glu Val Leu Gln Arg Pro Ala Ser Ile Met Glu  
 50 55 60  
 Ser Asp Lys Gly Trp Thr Ser Ala Ser Thr Ser Gly Lys Pro Arg Lys  
 65 70 75 80  
 Asp Lys Ala Ser Gly Lys Leu Tyr Pro Glu Ser Glu Glu Asp Lys Glu  
 85 90 95  
 Ala Pro Thr Gly Ser Arg Tyr Arg Gly Arg Pro Cys Leu Pro Glu Trp  
 100 105 110  
 Asp His Ile Leu Cys Trp Pro Leu Gly Ala Pro Gly Glu Val Val Ala  
 115 120 125

Val	Pro	Cys	Pro	Asp	Tyr	Ile	Tyr	Asp	Phe	Asn	His	Lys	Gly	His	Ala
	130					135					140				
Tyr	Arg	Arg	Cys	Asp	Arg	Asn	Gly	Ser	Trp	Glu	Leu	Val	Pro	Gly	His
145						150				155					160
Asn	Arg	Thr	Trp	Ala	Asn	Tyr	Ser	Glu	Cys	Val	Lys	Phe	Leu	Thr	Asn
				165					170					175	
Glu	Thr	Arg	Glu	Arg	Glu	Val	Phe	Asp	Arg	Leu	Gly	Met	Ile	Tyr	Thr
			180					185					190		
Val	Gly	Tyr	Ser	Val	Ser	Leu	Ala	Ser	Leu	Thr	Val	Ala	Val	Leu	Ile
	195						200				205				
Leu	Ala	Tyr	Phe	Arg	Arg	Leu	His	Cys	Thr	Arg	Asn	Tyr	Ile	His	Met
	210					215					220				
His	Leu	Phe	Leu	Ser	Phe	Met	Leu	Arg	Ala	Val	Ser	Ile	Phe	Val	Lys
225					230					235					240
Asp	Ala	Val	Leu	Tyr	Ser	Gly	Ala	Thr	Leu	Asp	Glu	Ala	Glu	Arg	Leu
				245					250					255	
Thr	Glu	Glu	Glu	Leu	Arg	Ala	Ile	Ala	Gln	Ala	Pro	Pro	Pro	Pro	Ala
			260					265					270		
Thr	Ala	Ala	Ala	Gly	Tyr	Ala	Gly	Cys	Arg	Val	Ala	Val	Thr	Phe	Phe
	275						280					285			
Leu	Tyr	Phe	Leu	Ala	Thr	Asn	Tyr	Tyr	Trp	Ile	Leu	Val	Glu	Gly	Leu
	290					295					300				
Tyr	Leu	His	Ser	Leu	Ile	Phe	Met	Ala	Phe	Phe	Ser	Glu	Lys	Lys	Tyr
305					310					315					320
Leu	Trp	Gly	Phe	Thr	Val	Phe	Gly	Trp	Gly	Leu	Pro	Ala	Val	Phe	Val
				325					330					335	
Ala	Val	Trp	Val	Ser	Val	Arg	Ala	Thr	Leu	Ala	Asn	Thr	Gly	Cys	Trp
			340					345					350		
Asp	Leu	Ser	Ser	Gly	Asn	Lys	Lys	Trp	Ile	Ile	Gln	Val	Pro	Ile	Leu
	355					360						365			
Ala	Ser	Ile	Val	Leu	Asn	Phe	Ile	Leu	Phe	Ile	Asn	Ile	Val	Arg	Val
	370					375					380				
Leu	Ala	Thr	Lys	Gln	Arg	Glu	Thr	Asn	Ala	Gly	Arg	Cys	Asp	Thr	Arg
385					390					395					400
Gln	Gln	Tyr	Arg	Lys	Leu	Leu	Lys	Ser	Thr	Leu	Val	Leu	Met	Pro	Leu
				405					410					415	
Phe	Gly	Val	His	Tyr	Ile	Val	Phe	Met	Ala	Thr	Pro	Tyr	Thr	Glu	Val
			420					425					430		
Ser	Gly	Thr	Leu	Trp	Gln	Val	Gln	Met	His	Tyr	Glu	Met	Leu	Phe	Asn
	435					440						445			
Ser	Phe	Gln	Gly	Phe	Phe	Val	Ala	Ile	Ile	Tyr	Cys	Phe	Cys	Asn	Gly
	450					455				460					
Glu	Val	Gln	Ala	Glu	Ile	Lys	Lys	Ser	Trp	Ser	Arg	Trp	Thr	Leu	Ala
465					470					475					480
Leu	Asp	Phe	Lys	Arg	Lys	Ala	Arg	Ser	Gly	Ser	Ser	Ser	Tyr	Ser	Tyr
				485					490					495	
Gly	Pro	Met	Val	Ser	His	Thr	Ser	Val	Thr	Asn	Val	Gly	Pro	Arg	Val
			500					505					510		
Gly	Leu	Gly	Leu	Pro	Leu	Ser	Pro	Arg	Leu	Leu	Pro	Thr	Ala	Thr	Thr
	515						520					525			
Asn	Gly	His	Pro	Gln	Leu	Pro	Gly	His	Ala	Lys	Pro	Gly	Thr	Pro	Ala
	530					535					540				
Leu	Glu	Thr	Leu	Glu	Thr	Thr	Pro	Pro	Ala	Met	Ala	Ala	Pro	Lys	Asp
545					550					555					560
Asp	Gly	Phe	Leu	Asn	Gly	Ser	Cys	Ser	Gly	Leu	Asp	Glu	Glu	Ala	Ser
				565					570					575	
Gly	Pro	Glu	Arg	Pro	Pro	Ala	Leu	Leu	Gln	Glu	Glu	Trp	Glu	Thr	Val
			580					585					590		

Met